



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,302	08/28/2003	Yukiko Kubota	S01.12-0965/STL 11036.00	6926
27365 7590 05/08/2008 SEAGATE TECHNOLOGY LLC C/O WESTMAN CHAMPLIN & KELLY, P.A. SUITE 1400 900 SECOND AVENUE SOUTH MINNEAPOLIS, MN 55402-3319			EXAMINER RICKMAN, HOLLY C	
			ART UNIT	PAPER NUMBER
			1794	
			MAIL DATE	DELIVERY MODE
			05/08/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YUKIKO KUBOTA,
DUANE CLIFFORD KARNS
and KURT WARREN WIERMAN

Appeal 2008-2774
Application 10/650,302
Technology Center 1700

Decided: May 8, 2008

Before EDWARD C. KIMLIN, THOMAS A. WALTZ, and
JEFFREY T. SMITH, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-6, 8-22, and 25-28. Claims 29-33 have been withdrawn from consideration, and claims 7, 23, and 24 have been objected to by the Examiner. Claim 1 is illustrative:

1. A magnetic recording medium for communication with a transducer moving relative to the recording medium along a line of relative transducer motion, comprising:

a substrate having a substrate surface;

a seed layer disposed on the substrate surface;

a soft magnetic underlayer disposed on the seed layer, the soft magnetic underlayer comprising a magnetic material having a magnetic moment larger than 1.7 Teslas, the soft magnetic underlayer having a texture that provides a magnetic easy axis that has an easy axis alignment parallel to the line of relative transducer motion; and

a magnetic storage layer disposed on the soft magnetic underlayer.

The Examiner relies upon the following references as evidence of obviousness:

Shimizu	US 2002/0004148 A1	Jan. 10, 2002
Carey	US 2003/0022023 A1	Jan. 30, 2003

B. D. Cullity, *"Introduction to Magnetic Materials,"* 357-360, Addison-Wesley Publishing Com., Inc. (1972).

L. J. Giacoletto, *"Electronics Designers' Handbook,"* Second Edition, 2-92 to 2-97, McGraw-Hill Book Co. (1977).

McGraw-Hill Concise Encyclopedia of Science and Technology, 1100, Third Edition, McGraw Hill, Inc. (1994).

K. G. Ashar, *"Magnetic Disk Drive Technology,"* 37-38, IEEE Press (1997).

Prof. P. W. Chambers, *"Dictionary of Science and Technology,"* 497, 805, 1157, Chambers Harrap Publishers, Ltd. (1999).

Appeal 2008-2774
Application 10/650,302

Appellants' claimed invention is directed to a magnetic recording medium comprising a substrate, a seed layer disposed on the substrate surface, a soft magnetic underlayer disposed on the seed layer, and a magnetic storage layer disposed on the underlayer. The soft magnetic underlayer comprises a magnetic material having a magnetic moment larger than 1.7 Teslas (T). A preferred material having such a magnetic moment is an FeCo alloy.

Appealed claims 1-6, 8-22, and 25-28 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Carey in view of Shimizu.

Appellants do not set forth an argument that is reasonably specific to any particular claim on appeal. Accordingly, all the appealed claims stand or fall together with claim 1.

We have thoroughly reviewed each of Appellants' arguments for patentability as well as the evidence relied upon in support thereof. However, we are in complete agreement with the Examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the Examiner's rejection for essentially those reasons expressed in the Answer.

There is no dispute that Carey, like Appellants, discloses a magnetic recording medium comprising a seed layer disposed on a substrate surface, a soft magnetic underlayer disposed on the seed layer comprising Appellants' proffered material, FeCo, and a magnetic recording layer thereon. The Examiner recognizes that Carey "is silent with respect to the texturing of the

soft magnetic underlayer to provide circumferential easy axis orientation" (Ans. 4, third para.). However, Appellants do not dispute the Examiner's legal conclusion that Shimizu evidences the obviousness of circumferentially texturing the substrate beneath a soft magnetic underlayer "in order to effect texturing of the soft magnetic layer thereby reducing spike noise" (Ans. 4, fourth para.). As for the claimed soft magnetic underlayer having a magnetic moment larger than 1.6 T, it is the Examiner's position that the FeCo alloy taught by Carey for the soft magnetic layer inherently possesses a magnetic moment greater than 1.7 T. The Examiner bases the finding of inherency on the statement in Appellants' Specification that "FeCo alloys exhibit the largest magnetic moment, at least 2.4 Teslas, among known materials in bulk phase" (sentence bridging pages 4-5).

It is well settled that when a claimed product or process reasonably appears to be substantially the same as a product or process disclosed by the prior art, the burden is properly upon the applicant to demonstrate that the prior art product or process does not necessarily or inherently possess characteristics attributed to the claimed product or process. *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990); *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977). In the present case, we find that the Examiner has established a prima facie case of inherency with respect to the claimed magnetic underlayer having a magnetic moment larger than 1.7 T. The Examiner's rationale is quite reasonable inasmuch as Appellants' Specification states that FeCo alloys have a magnetic moment of **at least** 2.4 T. Consequently, it is Appellants' burden to establish that the soft magnetic underlayer of

FeCo disclosed by Carey does not necessarily exhibit a magnetic moment within the claimed range, i.e., larger than 1.7 T.

Appellants submit that "[m]agnetics moment along an easy axis is not an intrinsic or inherent property of a particular composition of a magnetic material" (Principal Br. 7, third para.). Appellants explain "[f]or a particular composition of magnetic material, magnetic moment along an easy axis is not a fixed value, but can be varied by magnetic annealing history of the particular composition of magnetic material" (*id.*). As evidence that the magnetic moment depends on the combined thermal and magnetic history of the material, Appellants cite FIGS. 10.2(a), (b), (c) and (d) on page 360 of *Introduction to Magnetic Materials*. The reference demonstrates that for the same material, 65% Ni and 35% Fe, samples with different magnetic annealing histories exhibit different magnetic moments. In particular, the magnetic moments of compositions 10.2(a), 10.2(b), and 10.2(c) have magnetic moments of 1.2 T, 1.0 T and 1.33 T. Appellants contend that this data supports the position that "[t]he value of magnetic moment is not inherent to a particular chemical composition [but] is a function of thermal magnetic history as well as texturing" (Principal Br. 9, last para.).

Upon careful consideration of Appellants' argument and supporting evidence, we find ourselves in agreement with the Examiner that Appellants have not satisfied the burden of establishing that the FeCo soft magnetic underlayer of Carey does not have a magnetic moment within the claimed range of larger than 1.7 T. As pointed out by the Examiner, the data in the *Introduction to Magnetic Materials* publication cited by Appellants is not

directed to an FeCo alloy but, rather, a NiFe alloy. Accordingly, the data provides no evidence on the effect of annealing history on the magnetic moment of FeCo alloys. In addition, assuming for the sake of argument that FeCo alloys display different magnetic moments for different annealing histories, Appellants have proffered no evidence whatsoever that one of ordinary skill in the art would have annealed the FeCo alloy of Carey in such a way to produce a magnetic moment less than 1.7 T. We note that the three compositions in the reference cited by Appellants have a maximum variance of only 0.33 T, i.e., the minimum T is 1.0 and the maximum is 1.33. Hence, bearing in mind that Appellants' Specification states that the magnetic moment of FeCo alloys is **at least** 2.4 T, an annealing treatment that changes the magnetic moment of even 0.33 T would still result in the FeCo alloy having a T of 2.07, which is considerably greater than the claimed minimum of 1.7 T.

Accordingly, in the absence of any evidence proffered by Appellants that FeCo alloys may exhibit a magnetic moment of less than 1.7 T, the prima facie case of inherency established by the Examiner stands un rebutted. As set forth by the Examiner, Appellants' Specification fails to disclose any particular treatment for the proffered FeCo alloy that produces a magnetic moment within the claimed range. Nor have Appellants cited any evidence that any alloys of FeCo have a magnetic moment equal to or less than 1.7 T, let alone FeCo alloys which one with ordinary skill in the art would have employed in practicing the invention disclosed by Carey.

In conclusion, based on the foregoing and the reasons well stated by the Examiner, the Examiner's decision rejecting the appealed claims is affirmed.

Appeal 2008-2774
Application 10/650,302

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(effective Sept. 13, 2004).

AFFIRMED

cam

SEAGATE TECHNOLOGY LLC
C/O WESTMAN CHAMPLIN & KELLY, P.A.
SUITE 1400
900 SECOND AVE. SOUTH
MINNEAPOLIS, MN 55402-3319